Trend Study 17-63-02

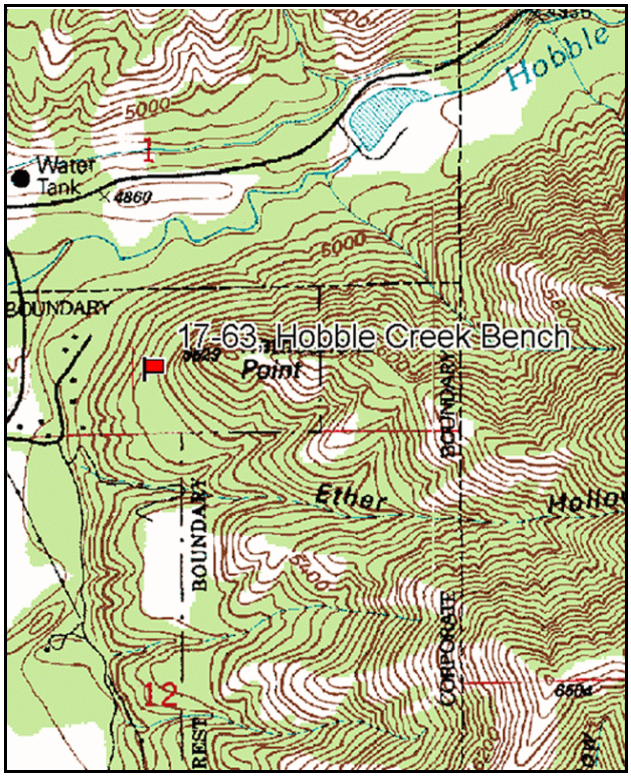
Study site name: Hobble Creek Bench . Vegetation type: Bitterbrush .

Compass bearing: frequency baseline 355 degrees magnetic (line 1 @ 245°M, line 2 @ 192°M, line 3 @ 165°M).

Frequency belt placement: line 1 (97 ft), line 2 (11 ft, 37 ft and 95 ft), line 3 (34 ft).

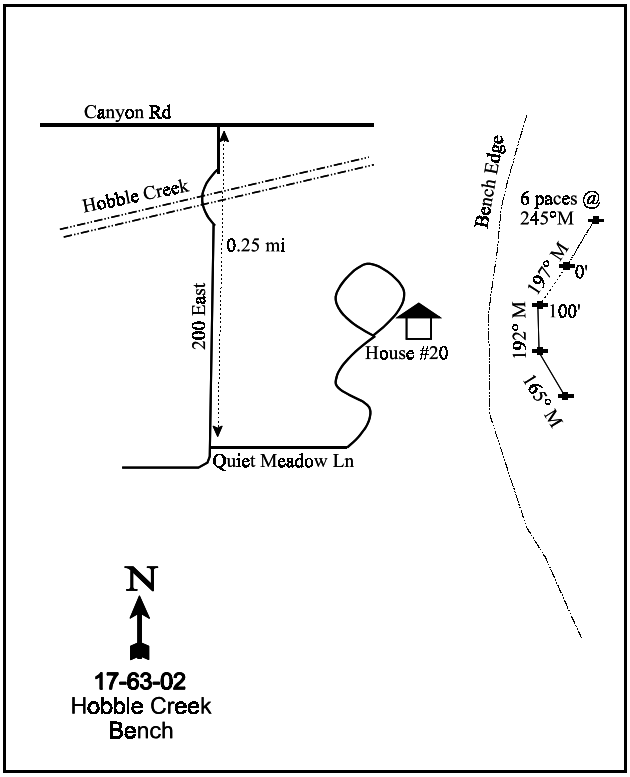
LOCATION DESCRIPTION

On Highway 89 in Mapleton, take 1650 South which will change into 1600 North. Follow 1600 North until it junctions with Quiet Meadow Lane (1600 North ends at this point). Park in front of house # 20. Ask owner, Mark Petersen, for permission to walk into his backyard. Go up his driveway to a footpath up the hill. Go up the steep hill until a bench is reached. A half high witness post is located in a clearing. The 0-foot stake is 6 paces at 245 degrees magnetic from the witness post and is marked by browse tag #183.



Map Name: Lehi

Township 8S , Range 3E , Section 1



Diagrammatic Sketch

GPS: NAD 27, UTM 12S 4443956 N 453083 E

DISCUSSION

Hobble Creek Bench - Trend Study No. 17-63

This trend study was established in 2002 to sample critical winter range at the mouth of Hobble Creek Canyon. It samples a bitterbrush community surrounded by Gambel oak clones on a nearly level bench about 300 yards above a housing development. Elevation at the site is about 5,100 feet. The site receives winter use by deer and elk. A pellet group transect read on the site in 2002 estimated 58 deer and 23 elk days use/acre (143 ddu/ha and 56 edu/ha).

Soil at the site is moderately deep with an effective rooting depth estimated at 14 inches. There is very little rock or pavement on the surface or within the profile. Soil compaction was the only thing limiting deeper soil depth measurements. Soil texture is a sandy loam with a neutral reaction (pH of 6.9). Soil temperature is moderately high for a level site averaging 68°F at a depth of 13 inches. There is little bare ground exposed due to the abundant herbaceous vegetation. Erosion is not a problem and the erosion condition class was determined to be stable in 2002.

The site supports a large stand of bitterbrush with an understory of bulbous bluegrass. Density of bitterbrush was estimated at 1,040 mostly mature plants/acre in 2002. These are low growing shrubs that average only about 2 feet in height with a large crown diameter of over 6 feet. They were heavily hedged but vigorous with annual leader growth averaging nearly 5 inches in 2002.

Mountain big sagebrush occurs in fairly low numbers with a population estimated at 640 plants/acre in 2002. They are mostly lightly hedged and vigorous with annual leader growth averaging 3 inches. About one-third of the population was decadent and recruitment is poor. There are a few large moderately hedged true mountain mahogany on site. Gambel oak clones occur around the site. They are lightly utilized and vary in size from small plants of about 2 to 3 feet in height to large tree-like forms of 8 to 10 feet in height.

The herbaceous understory is abundant but dominated by the low value increaser bulbous bluegrass. It provided 91% of the grass cover or 87% of the total herbaceous cover in 2002. Other fairly common perennial grasses included purple three-awn, sand dropseed, and needle-and-thread. Cheatgrass, an annual, was also encountered in low numbers. Forbs are uncommon. The most abundant perennial species consisted of arrowleaf balsamroot, stone seed, and longleaf phlox. All forbs combined produced less than 3% total cover.

2002 APPARENT TREND ASSESSMENT

Soil at the site is well protected with abundant herbaceous vegetation. There is little bare ground exposed and there is no noticeable erosion occurring. The abundant bitterbrush is heavily hedged but vigorous. It appears to have a stable population. Other preferred browse occur in low numbers. The herbaceous understory is abundant but composition is poor. The low value perennial, bulbous bluegrass, totally dominates the understory by providing 91% of the grass cover or 87% of the total herbaceous cover. This grass cures out early in the summer and can provide fine fuels for wildfire. Forbs are rare.

HERBACEOUS TRENDS --
Herd unit 17 , Study no: 63

Type	Species	Nested Frequency '02	Quadrat Frequency '02	Average Cover % '02
G	Agropyron spicatum	29	12	.53
G	Aristida purpurea	44	17	1.09
G	Bromus tectorum (a)	65	22	.57
G	Poa bulbosa	460	98	52.47
G	Poa secunda	5	2	.01
G	Sporobolus cryptandrus	32	17	1.47
G	Stipa comata	29	10	1.23
Total for Annual Grasses		65	22	0.57
Total for Perennial Grasses		599	156	56.81
Total for Grasses		664	178	57.38
F	Agoseris glauca	2	1	.00
F	Alyssum alyssoides (a)	3	1	.00
F	Astragalus utahensis	-	-	.00
F	Balsamorhiza sagittata	14	4	.82
F	Calochortus nuttallii	2	2	.01
F	Comandra pallida	4	2	.03
F	Crepis acuminata	2	1	.03
F	Cymopterus spp.	1	1	.00
F	Erodium cicutarium (a)	5	3	.04
F	Galium aparine (a)	4	1	.03
F	Heterotheca villosa	6	3	.63
F	Lithospermum ruderale	12	4	.92
F	Microsteris gracilis (a)	2	1	.00
F	Phlox longifolia	16	9	.11
F	Sphaeralcea coccinea	-	-	.00
F	Tragopogon dubius	6	4	.10
Total for Annual Forbs		14	6	0.08
Total for Perennial Forbs		65	31	2.69
Total for Forbs		79	37	2.76

BROWSE TRENDS --
Herd unit 17 , Study no: 63

Type	Species	Strip Frequency '02	Average Cover % '02
B	Artemisia tridentata vaseyana	25	2.08
B	Gutierrezia sarothrae	3	.18
B	Opuntia spp.	1	.15
B	Purshia tridentata	36	13.60
B	Quercus gambelii	3	.63
Total for Browse		68	16.64

CANOPY COVER -- LINE INTERCEPT
Herd unit 17 , Study no: 63

Species	Percent Cover '02
Artemisia tridentata vaseyana	2.08
Purshia tridentata	17.92
Quercus gambelii	2.50

Key Browse Annual Leader Growth
Herd unit 17 , Study no: 63

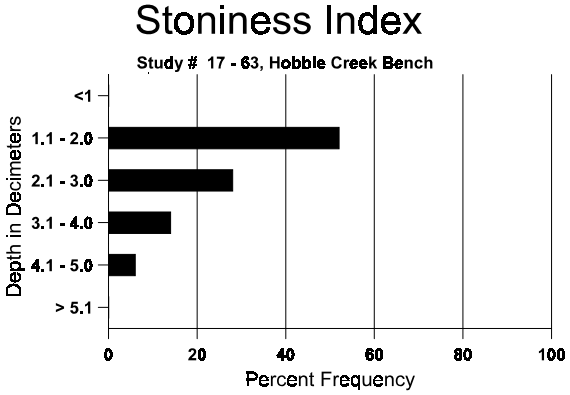
Species	Average leader growth (in) '02
Artemisia tridentata vaseyana	3.0
Purshia tridentata	5.0

BASIC COVER --
Herd unit 17 , Study no: 63

Cover Type	Nested Frequency '02	Average Cover % '02
Vegetation	488	75.90
Rock	19	.07
Pavement	78	.50
Litter	453	26.54
Cryptogams	168	8.05
Bare Ground	76	3.07

SOIL ANALYSIS DATA --
Herd Unit 17, Study no: 63, Hobble Creek Bench

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.1	68.0 (13.4)	6.9	65.3	20.7	14.0	1.0	13.4	92.8	.5



PELLET GROUP FREQUENCY --
Herd unit 17 , Study no: 63

Type	Quadrat Frequency '02	Pellet Transect	
		Pellet Groups per Acre ⁄02	Days Use per Acre (ha) ⁄02
Rabbit	2	-	-
Elk	13	296	23 (56)
Deer	28	757	58 (144)

BROWSE CHARACTERISTICS --
Herd unit 17 , Study no: 63

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata vaseyana																		
Y	02	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	02	18	2	-	-	-	-	1	-	-	20	1	-	-	420	22	34	21
D	02	7	2	-	-	-	-	1	-	-	3	-	-	7	200			10
X	02	-	-	-	-	-	-	-	-	-	-	-	-	-	280			14
% Plants Showing '02		Moderate Use 13%		Heavy Use 00%		Poor Vigor 22%									%Change			
Total Plants/Acre (excluding Dead & Seedlings)											'02				640	Dec:		31%
Cercocarpus montanus																		
M	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	96	122	0
% Plants Showing '02		Moderate Use 00%		Heavy Use 00%		Poor Vigor 00%									%Change			
Total Plants/Acre (excluding Dead & Seedlings)											'02				0	Dec:		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
M	02	-	-	-	-	-	-	-	-	-	-	-	-	-	0	24	60	0
% Plants Showing '02				Moderate Use 00%			Heavy Use 00%			Poor Vigor 00%					%Change			
Total Plants/Acre (excluding Dead & Seedlings)													'02		0	Dec:		-
Gutierrezia sarothrae																		
M	02	1	-	-	-	-	-	1	-	-	2	-	-	-	40	16	16	2
D	02	2	-	-	-	-	-	-	-	-	1	-	-	1	40			2
X	02	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6
% Plants Showing '02				Moderate Use 00%			Heavy Use 00%			Poor Vigor 25%					%Change			
Total Plants/Acre (excluding Dead & Seedlings)													'02		80	Dec:		50%
Opuntia spp.																		
M	02	4	-	-	-	-	-	-	-	-	4	-	-	-	80	3	8	4
% Plants Showing '02				Moderate Use 00%			Heavy Use 00%			Poor Vigor 00%					%Change			
Total Plants/Acre (excluding Dead & Seedlings)													'02		80	Dec:		-
Purshia tridentata																		
Y	02	-	-	2	-	-	-	-	-	-	2	-	-	-	40			2
M	02	7	3	33	-	-	1	-	-	-	43	1	-	-	880	28	78	44
D	02	-	1	5	-	-	-	-	-	-	5	-	-	1	120			6
% Plants Showing '02				Moderate Use 08%			Heavy Use 79%			Poor Vigor 02%					%Change			
Total Plants/Acre (excluding Dead & Seedlings)													'02		1040	Dec:		12%
Quercus gambelii																		
M	02	9	-	-	-	-	-	-	-	-	9	-	-	-	180	34	27	9
X	02	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
% Plants Showing '02				Moderate Use 00%			Heavy Use 00%			Poor Vigor 00%					%Change			
Total Plants/Acre (excluding Dead & Seedlings)													'02		180	Dec:		-